Project Introduction

The use of UAVs has increased exponentially since 1995, and this growth is expected to continue. Many of these applications require extensive Research and Development; however, the need to fund development of the UAV often competes with funding intended for the end-user application. Therefore, off the shelf, low cost, easily configurable integrated avionics systems will significantly reduce the budget impact for UAVs yet will support the wide range of applications for their use. CTSi and Virginia Commonwealth University are proposing the use of an integrated VCU developed avionics package with a user configurable autopilot system that will meet the needs of a wide range of experimental test bed UAVs. The system will include: 1. The ability for the safety pilot to take direct control of the aircraft using an on-board fail-safe control switch 2. A built-in autopilot to provide return-to-home capability upon failure of the RF links, safety/ground pilot assistance in performing research maneuvers, and limited upset recovery 3. An open-architecture hardware design enabling customer upgrade of sensors, actuators, and data links 4. An open-architecture software design enabling push-button auto-coding of control algorithms direct from Simulink 5. A flexible architecture allowing customer-developed control laws to be executed on ground-based computers via uplink and downlink telemetry or onboard the aircraft using an optional Advanced Adaptive Flight Control Processor.

Primary U.S. Work Locations and Key Partners

Avionics for Scaled Remotely Operated Vehicles, Phase I
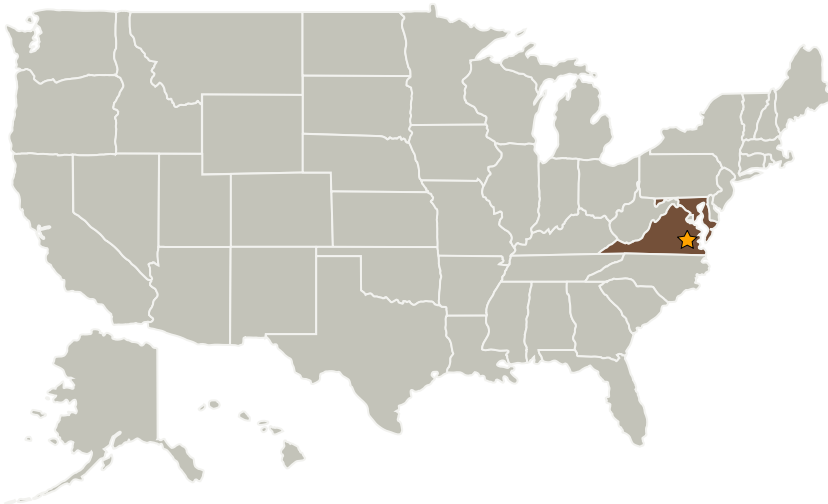
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Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Langley Research Center (LaRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Organizations Performing Work	Role	Type	Location
⭐Langley Research Center(LaRC)	Lead Organization	NASA Center	Hampton, Virginia
Coherent Technical Services, Inc.	Supporting Organization	Industry	Lexington Park, Maryland

Primary U.S. Work Locations	
Maryland	Virginia

Project Management

Program Director:
Jason L Kessler

Program Manager:
Carlos Torrez

Principal Investigator:
Ian Gallimore

Technology Areas

Primary:

- TX02 Flight Computing and Avionics
  └ TX02.2 Avionics Systems and Subsystems
    └ TX02.2.2 Aircraft Avionics Systems

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